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Lichens from Qaanaaq and Siorapaluk, North West Greenland

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Abstract: A total of 172 taxa of lichens are reported from Qaanaaq and Siorapaluk in North West Greenland. Geology and climate of the two localities are briefly treated.

Kokkuvõte: Qaanaaqi ja Siorapaluki (Loode-Gröönimaa) samblikud

Teatatakse 172 samblikuliigi leidmisest Loode-Gröönimaalt. Lühidalt tutvustatakse kahe leiukoha geoloogiat ja kliimat.

INTRODUCTION

Early lichenological work in Greenland focused upon simple collection of lichens. The collectors confined themselves to a short information on the substrates and habitats of the lichens together with notes on associated species and general frequency of the lichens at the investigated localities and in many cases the whole Greenland, although only comparatively small parts of the extensive island were explored (Branth & Grønlund, 1888; Branth, 1892, 1894). The ecological approach in the 20th century gave a more detailed picture of the occurrence and distribution of the Greenland lichens (Böcher, 1954; Daniëls, 1975, 1982; Hansen, 1978a & b, 1995a). When K. Hansen studied the macrolichen flora at numerous stations in South West Greenland in 1962 and 1965, he paid particular attention to the distribution of the species in the investigated region in relation to climatic conditions (K. Hansen, 1971). Detailed information on this aspect was so far lacking from most areas in Greenland, and quantitative investigations of the ecological and sociological occurrence of the Greenland lichens were rare or lacking. K. Hansen defined oceanity-continentiality indices for totally 126 species of macrolichens found in 1962 and 1965. During a study of more than 200 selected lichens collected in South West Greenland in the summer of 2008 the present author attempted to follow up K. Hansen's studies on the climatic distribution types of Greenland lichens and to include the microlichens in these investigations (Hansen, 2010). Recently extensive lichen collections have been made in northern areas in Greenland (Alstrup et al., 2000; Hansen, 1995b, 2001, 2002, 2008, 2009), and it therefore seems reasonable to

extend this type of investigation to such areas. However, additional studies are needed, before an updated survey of the distribution types of the northernmost lichens in Greenland can be presented. Thomson's distribution maps cannot be considered complete regarding Greenland (Thomson, 1984, 1997). The author decided to revisit the Thule area in the summer of 2009 with the purpose of obtaining additional informations about lichen flora of Qaanaaq and Siorapaluk. The author previously investigated the lichen flora of Qaanaaq in the summer of 1986 (Hansen, 1989; Hansen & Dawes, 1990). A survey of the previous lichenological investigations in the Thule district has been given by Hansen (1989).

Localities and geology

The following two localities were investigated by the author (Fig. 1).

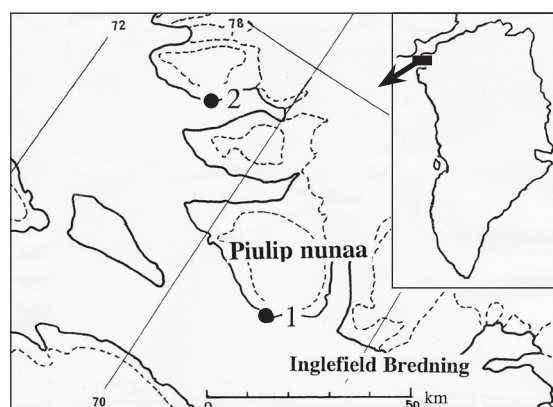


Fig. 1. Location of the two investigation areas in NW Greenland. 1 – Qaanaaq. 2 – Siorapaluk.

1. Qaanaaq – 77°29'N 69°12'W. 20, 23 & 30 July, 3 August 2009. Archaean-Proterozoic gneisses and amphibolites and overlying late Proterozoic sandstones and conglomerates belonging to the Thule Supergroup. The rocks are cut by dolerite dykes (Dawes, 1997). The town is situated near the south point of Piulip Nunaa Peninsula that is partly covered by a central icecap (Fig. 2). Lichenological investigations were carried out in the dwarf shrub heaths, fell-fields, bogs, snow-patches and on rocks and boulders in the surroundings of Qaanaaq (alt. 0–200 m). A detailed description of the lichen vegetation around Qaanaaq is given by Hansen (1989) and Hansen & Dawes (1990).



Fig. 2. Slopes above Qaanaaq with patches of dwarf shrub heaths composed of *Vaccinium uliginosum* and numerous terricolous lichens. Herbert Ø is seen in the background.

2. Siorapaluk – 77°47'N 70°29'W. 24–29 July 2009. The main types of rocks occurring in the surficial deposits around Siorapaluk are similar to those of the Qaanaaq area. The town is located on a coastal strip at the north side of Robertson Fjord about 50 km northwest of Qaanaaq. Large populations of little auk occur in the up to 900 m high mountain above Siorapaluk. This bird species manures the rocks, some of which have a conspicuous red colour due to extensive occurrences of different *Xanthorias* (Fig. 3). Dwarf-shrub heaths, fell-fields and different saxicolous lichen communities occurring on the basal part of this mountain and in the surroundings of Siorapaluk were explored by the author (0–300 m). The fell-field vegetation just above the town is dense and rich in well-developed lichens be-



Fig. 3. Mountains with large populations of little auk at Siorapaluk. The rocks hold a dense vegetation of *Xanthorias*, *Physcias* and other nitrophilous lichens.

longing to, for example, *Alectoria*, *Bryocaulon* and *Bryoria*.

Climate

The Thule area has a high arctic and continental climate. The average annual precipitation at Qaanaaq and Siorapaluk is about 100 mm, most of it falling as snow. Precipitation is greatest in July and August. The snow depth is greatest in April. In July and August the snow disappears totally from the ground in the lowlands. Formation of coastal fog is frequent during the summer. The polar night lasts from late October to the middle of February. The mean temperature of the warmest month, July, is 7°C, while the mean temperature of the coldest month, January, is -22°C according to measurements made in Qaanaaq by Asiaq/Grønlands Forundersøgelse (2000).

MATERIAL AND METHODS

Lichens were collected at numerous sample plots at the two localities in the summer of 2009. The collected material, a total of 382 specimens of lichens, was studied with Zeiss light microscopes. Selected specimens of *Rinodina* were identified by means of TLC. Numerous collections of *Lepraria* await further chemical investigations and are excluded from the present paper. The material is deposited at the Botanical Museum, University of Copenhagen (C).

RESULTS

Annotated list of lichens

The following list of lichens is based on the author's collections which include totally 172 taxa. The list cannot be considered representative as regards *Aspicilia* and a number of lecideoid lichens, which have been neglected during the present investigation. Nomenclature follows Santesson et al. (2004) with some exceptions. Numbers 1 and 2 indicate the two localities listed above. Annotations are given as regards the substrate of the lichens, the plant community in which they occur and presence of apothecia (ap.) or perithecia (pe.); "st." means that the specimen is sterile. The frequency is mentioned, where it was possible to estimate it. The following estimation classes are used: rare, common, locally abundant. Collections which are distributed from herbarium (C) as part of "Lichenes Groenlandici Exsiccati" (LGE) are stated by their numbers.

- ACAROSPORA BADIOFUSCA (Nyl.) Th. Fr. – 1, 2. On gneissic rocks manured by birds, together with *Candelariella vitellina*, *Dimelaena oreina* and *Xanthoria elegans*; ap.
- A. FUSCATA (Schrad.) Th. Fr. – 1. On siliceous rock manured by birds, together with *Physcia dubia*; ap.
- A. MOLYBDINA (Wahlenb.) A. Massal. – 2. On siliceous seashore rock manured by birds, together with *Caloplaca alcarum*, *Lecanora contractula* and *Xanthoria elegans*; ap.
- A. SMARAGDULA (Wahlenb.) A. Massal. – 1, 2. On siliceous rocks manured by birds, together with *Lecanora intricata*, *Rhizocarpon geminatum* and *Umbilicaria decussata*; ap.
- ALECTORIA OCHROLEUCA (Hoffm.) A. Massal. – 1, 2. On soil in dwarf shrub heaths and fell-fields; st.; common. LGE 1098, 1106.
- AMANDINEA CACUMINUM (Th. Fr.) H. Mayrhofer & Sheard – 2. On siliceous stones and on old bone; ap.
- ARCTOCETRARIA NIGRICASCENS (Nyl.) Kärnefelt & A. Thell – 1, 2. On soil and mosses in moist places in dwarf shrub heaths; st.; locally abundant. LGE 1096.
- ARCTOPARMELIA CENTRIFUGA (L.) Hale – 1. On siliceous rock; st.
- A. INCURVA (Pers.) Hale – 1, 2. On siliceous rocks, together with *Umbilicaria hyperborea*; st.
- A. SEPARATA (Th. Fr.) Hale – 1. On siliceous rock, soil and mosses; st.; rare.
- ARTHRORHAPHIS ALPINA (Schaer.) R. Sant. – 2. On mosses; st.
- A. CITRINELLA (Ach.) Poelt – 1. On mineral soil; st.
- ASPICILIA CINEREA (L.) Körb. – 2. On siliceous rock; ap.
- A. MASTRUCATA (Wahlenb.) Th. Fr. – 1. On siliceous rock, together with *Sporastatia testudinea* and *Umbilicaria hyperborea*; ap.
- BAEOMYCES CARNEUS Flörke – 1. On mineral soil; st.
- BELLEMERIA SUBSOREDIZA (Lyngé) R. Sant. – 2. On basaltic rock, together with *Arctoparmelia incurva*, *Rhizocarpon grande* and *Umbilicaria hyperborea*; st.; rare.
- BRODOA OROARCTICA (Krog) Goward – 1, 2. On siliceous rocks, together with *Pseudephebe minuscula*; st.
- BRYOCAULON DIVERGENS (Ach.) Kärnefelt – 1, 2. On soil in dwarf shrub heaths and fell-fields; st.; common. LGE 1109.
- BRYORIA CHALYBEIFORMIS (L.) Brodo & D. Hawksw. – 1, 2. On soil in dwarf-shrub heaths; st.
- B. NITIDULA (Th. Fr.) Brodo & D. Hawksw. – 1. On soil in dwarf shrub heath; st.
- BUELLIA ELEGANS Poelt – 1. On alkaline soil; ap. LGE 1095, 1114.
- B. PAPILLATA (Sommerf.) Tuck. – 2. On mosses, together with *Caloplaca tetraspora*, *Lopadium coralloideum*, *L. pezizoideum* and *Psoroma hypnorum*; ap.
- CALOPLACA ALCARUM Poelt – 2. On manured siliceous rock; ap.
- C. AMMIOSPILA (Wahlenb.) H. Olivier – 1. On soil, dead twig and other plant remains, together with *Lecanora epibryon*; ap.
- C. CASTELLANA (Räsänen) Poelt – 1, 2. On *Placynthium asperellum* and *Rhizocarpon geminatum* on siliceous rocks; ap.
- C. CERINA (Ehrh. Ex Hedw.) Th. Fr. – 1, 2. On old bones, together with *Candelariella aurella* and *Lecanora hagenii* var. *fallax*; ap.
- C. PSORICIDA E. S. Hansen, Poelt & Søchting – 1. On *Psora rubiformis* on soil; st.
- C. TETRASPORA (Nyl.) H. Olivier – 2. On mosses; ap.
- C. TIROLIENSIS Zahlbr. – 1, 2. On soil, mosses and old bones; ap.
- CALVITIMELA AGLAEA (Sommerf.) Hafellner – 2. On basaltic rock; ap.
- C. ARMENIACA (DC.) Hafellner – 1, 2. On siliceous rocks, together with *Rhizocarpon superficiale*, *Sporastatia testudinea* and *Umbilicaria torrefacta*; ap.

- CANDELARIELLA AURELLA (Hoffm.) Zahlbr. – 1, 2. On old bones; ap.
- C. CANADENSIS H. Magn. – 1, 2. On mineral soil; ap.
- C. DISPERSA (Räsänen) Hakul. – 1, 2. On *Placynthium asperellum* on siliceous rocks, together with *Caloplaca castellana*; ap.
- C. VITELLINA (Hoffm.) Müll. Arg. – 1, 2. On siliceous rocks manured by birds, together with *Lecanora intricata*, *Physcia caesia* and *Xanthoria elegans*; ap.
- C. XANTHOSTIGMA (Ach.) Lettau – 1, 2. On dead twig and old bone; st.
- CETRARIA ACULEATA (Schreb.) Fr. – 2. On soil in dwarf shrub heath; st; rare.
- C. ISLANDICA (L.) Ach. – 1, 2. On soil in dwarf shrub heaths; st. LGE 1100, 1120.
- C. MURICATA (Ach.) Eckfeldt – 1, 2. On soil in dwarf shrub heaths and fell-fields; st.
- C. NIGRICANS Nyl. – 1, 2. On soil and mosses, together with *Sphaerophorus fragilis* and *Thamnolia vermicularis*; st. LGE 1111.
- CETRARIELLA DELISEI (Bory ex Schaer.) Kärnefelt & A. Thell – 1, 2. On soil in moist places in dwarf shrub heaths; st. LGE 1097.
- CLADONIA ALASKANA A. Evans – 1, 2. On soil in dwarf shrub heath, together with *Cladonia amaurocraea*; st.; rare.
- C. AMAUROCRAEA (Flörke) Schaer. – 1, 2. On soil in dwarf shrub heaths; st.
- C. BOREALIS S. Stenroos – 1, 2. On soil in dwarf shrub heaths; st.
- C. CARIOSA s. lat. – 1. On soil in dwarf shrub heaths; st.
- C. CHLOROPHAEA (Flörke ex Sommerf.) Spreng. – 1, 2. On soil in dwarf shrub heaths; ap.
- C. COCCIFERA (L.) Willd. – 2. On soil, together with *C. borealis*; ap.
- C. CORNUTA (L.) Hoffm. – 2. On soil, together with *Cladonia cyanipes* and *C. macroceras*; st; rare.
- C. CYANIPES (Sommerf.) Nyl. 2. On soil; st; rare.
- C. FIMBRIATA (L.) Fr. – 2. On soil; st.
- C. LUTEALBA Wheldon & A. Wilson – 2. On soil; st.
- C. MACROCERAS (Delise) Hav. – 1, 2. On soil in dwarf shrub heaths, together with *Cladonia pyxidata*; st.
- C. MACROPHYLLA (Schaer.) Stenh. – 2. On soil; st.
- C. MITIS Sandst. – 1, 2. On soil and mosses in dwarf shrub heaths, together with *Cetrariella delisei*; st. LGE 1099, 1104.
- C. PHYLLOPHORA Hoffm. – 1. On soil in dwarf shrub heath, together with *Ochrolechia frigida*; st.
- C. PLEUROTA (Flörke) Schaer. – 2. On soil; ap.
- C. POCILLUM (Ach.) O. J. Rich. – 2. On soil; st.
- C. PYXIDATA (L.) Hoffm. – 1, 2. On soil in dwarf shrub heaths; st.
- C. RANGIFERINA (L.) F. H. Wigg. – 2. On mosses in dwarf shrub heath; st. LGE 1113.
- C. STRICTA (Nyl.) Nyl. – 1. On soil and mosses; st.
- C. SULPHURINA (Michx.) Fr. – 2. On soil; st; rare.
- C. TRASSII Ahti – 1, 2. On soil and mosses in moist places in dwarf shrub heaths, together with *Cladonia mitis*; st.
- DACTYLINA ARCTICA (Hook.) Nyl. – 1, 2. On soil and mosses in dwarf shrub heaths; st. LGE 1101, 1115.
- D. RAMULOSA (Hook.) Tuck. – 1, 2. On soil in dwarf shrub heaths; ap. LGE 1103.
- DIMELAENA OREINA (Ach.) Norman – 1, 2. On gneissic rocks manured by birds; st.
- FLAVOCETRARIA CUCULLATA (Bellardi) Kärnefelt & A. Thell – 1, 2. On soil in dwarf-shrub heaths and fell-fields, together with *Alectoria nigricans*, *Bryocaulon divergens* and *Flavocetraria nivalis*; ap.; common. LGE 1112.
- F. NIVALIS (L.) Kärnefelt & A. Thell – 1, 2. On soil in dwarf shrub heaths and fell-fields; st.; common. LGE 1107.
- GOWARDIA NIGRICANS (Ach.) P. Halonen, L. Myllys, S. Velmala & H. Hyvärinen – 1, 2. On soil in dwarf shrub heaths and fell-fields; st.; common. LGE 1108.
- HYPOGYMNIA SUBOBSCURA (Vain.) Poelt – 1. On soil near watercourse, together with *Cetraria muricata*; st.; rare.
- IONASPIS LACUSTRIS (With.) Lutzoni – 1, 2. On siliceous stones, together with *Rhizocarpon grande* and *Umbilicaria virginis*; ap.
- LECANORA ATROSULPHUREA (Wahlenb.) Ach. – 1, 2. On siliceous rocks, together with *Rhizocarpon geographicum*; ap.
- L. CONTRACTULA Nyl. – 1, 2. On siliceous seashore rocks manured by birds; ap.
- L. EPIBRYON (Ach.) Ach. – 1. On plant remains; ap.
- L. GEOPHILA (Th. Fr.) Poelt 1, 2. On mineral soil; st. LGE 1102.
- L. HAGENII (Ach.) Ach. var. FALLAX Hepp – 2. On old bone; ap.
- L. INTRICATA (Ach.) Ach. – 1, 2. On siliceous rocks; ap.
- L. POLYTROPA (Ehrh. Ex Hoffm.) Rabenh. – 1, 2. On siliceous rocks; ap.; common.

- L. RUPICOLA (L.) Zahlbr. ssp. ARCTOA Poelt – 2. On siliceous rocks, together with *Sporastatia testudinea*; ap.
- LECIDEA ATROBRUNNEA (Ramond ex Lam. & DC.) Schaer. – 1, 2. On siliceous rocks manured by birds; ap.
- L. AURICULATA Th. Fr. – 1. On siliceous rock, together with *Lecidella bullata*; ap.
- L. TESSELATA Flörke – 1. On siliceous rocks, together with *Rhizocarpon geographicum* and *Tremolecia atrata*; ap.
- LECIDELLA BULLATA Körb. – 1. On siliceous rock; ap.
- L. EUPHOREA (Flörke) Hertel – 1. On siliceous rock; ap.
- LEPROCAULON SUBALBICANS (I. M. Lamb) I. M. Lamb & A. M. Ward – 1. On mosses.
- LEPTOGIUM LICHENOIDES (L.) Zahlbr. – 2. On mosses, together with *Arctocetraria nigricans*; st.
- LICHENOMPHALIA HUDSONIANA (H. S. Jenn.) Redhead et al. – 2. On mosses; rare.
- LOPADIUM CORALLOIDEUM (Nyl.) Lynge – 1, 2. On mosses, together with *Buellia papillata* and *Ochrolechia lapuënsis*; ap.
- L. PEZIZOIDEUM (Ach.) Körb. – 2. On mosses, together with *Candelariella canadensis*; ap.
- LOBOTHALLIA MELANASPIS (Ach.) Hafellner – 2. On siliceous stone; ap.
- MEGASPORA VERRUCOSA (Ach.) Hafellner & V. Wirth – 1. On mosses; ap.
- MELANELIA DISJUNCTA (Erichsen) Essl. – 1, 2. On siliceous rocks manured by birds, together with *Parmelia saxatilis*, *Pseudephebe minuscula* and *Rhizocarpon geminatum*; ap.
- M. HEPATIZON (Ach.) A. Thell – 1, 2. On siliceous rocks, together with *Protoparmelia badia* and *Rhizocarpon geographicum*; st.
- MELANOHALEA ELEGANTULA (Zahlbr.) O. Blanco, A. Crispo, Divikar, Essl., D. Hawksw. & Lumbsch – 1, 2. On siliceous rocks manured by birds; st.
- NEPHROMA EXPALLIDUM (Nyl.) Nyl. – 2. On mosses in dwarf shrub heath; st.; rare.
- OCHROLECHIA ALASKANA (Verseghy) Kukwa. – 1, 2. On mosses, soil and plant remains in dwarf shrub heaths; ap.; common. LGE 1110. Cortex reacts C+ yellow (Kukwa, 2009).
- O. GRIMMIAE Lynge – 1. On *Racomitrium lanuginosum*; ap.
- O. LAPUËNSIS (Räsänen) Räsänen – 2. On mosses and plant remains; ap.
- O. TARTAREA (L.) A. Massal. – 2. On siliceous rock, together with *Pseudephebe minuscula* and *Rhizocarpon grande*; st.
- O. UPSALIENSIS (L.) A. Massal. – 1, 2. On plant remains, together with *Cetraria muricata*; ap.
- OPHIOPARMA VENTOSA (L.) Norman – 1, 2. On siliceous rocks; ap.
- ORPHNIOSTOMA MORIOPSIS (A. Massal.) D. Hawksw. – 1, 2. On siliceous rocks, together with *Rhizocarpon geographicum* and *R. jemtlandicum*; ap.; common.
- PARMELIA OMPHALODES (L.) Ach. – 1, 2. On mosses and dead twig; st.
- P. SAXATILIS (L.) Ach. – 1, 2. On siliceous rocks, together with *Lecanora intricata* and *Rhizocarpon geographicum*; st.
- P. SULCATA Taylor – 1, 2. On siliceous rocks manured by birds; st.
- P. SKULTII Hale 1, 2. – On mosses, plant remains, soil and siliceous stones, together with *Pertusaria oculata* and *Rinodina turfacea*; st.; common.
- PELTIGERA APHTHOSA (L.) Willd. – 2. On mosses; st.; common. LGE 1105.
- P. DIDACTYLA (With.) J. R. Laundon – 1, 2. On mosses; st.
- P. LEUCOPHLEBIA (Nyl.) Gyeln. – 1. On mosses; st.
- P. MALACEA (Ach.) Funck – 2. On mosses; st.
- P. OCCIDENTALIS (E. Dahl) Kristinsson – 2. On mosses; ap. (Vitikainen, 1994).
- P. RUFESCENS (Weiss) Humb. – 1, 2. On mosses and soil; st.; common.
- P. SCABROSA Th. Fr. – 2. On mosses; st.
- PERTUSARIA CORIACEA (Th. Fr.) Th. Fr. – 1, 2. On soil, plant remains and mosses; ap.
- P. DACTYLINA (Ach.) Nyl. – 1, 2. On soil; st.
- P. OCLATA (Dicks.) Th. Fr. – 1, 2. On soil and mosses; st.
- P. PANYRGA (Ach.) A. Massal. – 1. On plant remains; ap.
- PHYSICIA CAESIA (Hoffm.) Fűrnr. – 1, 2. On siliceous rocks manured by birds, together with *Physcia dubia* and *Xanthoria elegans*; st.
- P. DUBIA (Hoffm.) Lettau – 1, 2. On siliceous rocks manured by birds; st.
- P. TENELLA (Scop.) DC. var. MARINA (E. Nyl.) Lynge – 1. On siliceous seashore rock; together with *Xanthoria candelaria*; st.; rare.
- PHYSCONIA DETERSA (Nyl.) Poelt – 2. On mosses on siliceous rock; st.; rare.
- PLACYNTHIELLA ULIGINOSA (Schrad.) Coppins & P. James – 2. On mosses in fen; st.

- PLACYNTHIUM ASPERELLUM (Ach.) Trevis. – 1, 2. On siliceous rocks; st.
- PLEOPSISIDIUM CHLOROPHANUM (Wahlenb.) Zopf – 1, 2. On siliceous rocks; ap.
- PORPIDIA FLAVICUNDA (Ach.) Gowan 1. On siliceous rock; ap.
- P. FLAVOCOERULESCENS (Hornem.) Hertel & A. J. Schwab – 2. On siliceous rock; st.
- P. MELINODES (Körb.) Gowan & Ahti – 2. On siliceous rock; st.
- P. THOMSONII Gowan – 2. On siliceous rock; ap.
- PROTOPANNARIA PEZIZOIDES (Weber) P. M. Jørg. & S. Ekman – 1, 2. On soil; ap.
- PROTOPARMELIA BADIA (Hoffm.) Hafellner – 2. On siliceous rock manured by birds, together with *Sporastatia testudinea*; ap.
- PSEUDEPHEBE MINUSCULA (Nyl. ex Arnold) Brodo & D. Hawksw. – 1, 2. On siliceous rocks; st.; common.
- PSORA RUBIFORMIS (Ach.) Hook. – 1. On mineral soil, together with *Candelariella canadensis*; ap.
- PSOROMA HYPNORUM (Vahl) Gray – 2. On mosses; ap.
- P. TENUE Henssen var. BOREALE Henssen – 1, 2. On plant remains and mosses, together with *Pertusaria oculata* and *Rinodina turfacea*; ap.
- RHIZOCARPON GEMINATUM Körb. – 1, 2. On manured siliceous rocks; ap.
- R. GEOGRAPHICUM (L.) DC. – 1, 2. On siliceous rocks; ap.; common. LGE 1117.
- R. GRANDE (Flörke) Arnold – 1, 2. On siliceous rocks; ap.
- R. JEMTLANDICUM (Malme) Malme – 1, 2. On siliceous rocks, together with *Pseudephebe minuscula*, *Sporastatia testudinea* and *Umbilicaria hyperborea*; ap.
- R. LAVATUM (Fr.) Hazsl. – 1. On moist siliceous rocks; ap.
- R. PUSILLUM Runemark – 1, 2. On *Sporastatia testudinea* on siliceous rocks; ap.
- R. SUBAREOLATUM E. S. Hansen – 1, 2. On *Rhizocarpon grande* on siliceous rocks; ap.
- R. SUPERFICIALE (Schaer.) Vain. – 2. On siliceous rocks, together with *Sporastatia testudinea* and *Umbilicaria lyngei*; ap.
- RHIZOPLACA MELANOPHTHALMA (DC.) Leuckert & Poelt – 1, 2. On siliceous rocks manured by birds, together with *Rhizocarpon geminatum*; ap.
- RINODINA MNIARAEA (Ach.) Körb. var. MNIARAEIZA (Nyl.) H. Magn. – 2. On dead mosses; ap. Thallus contains atranorin (TLC).
- R. OLIVACEOBRUNNEA C.W. Dodge & G.E. Baker – 2. On mosses; ap.
- R. TURFACEA (Wahlenb.) Körb. – 1. On mosses; ap.
- SOLORINA CROCEA (L.) Ach. – 1, 2. On soil near snow-patches; ap.
- SPHAEROPHORUS FRAGILIS (L.) Pers. – 1, 2. On soil in fell-fields, together with *Alectoria nigricans*, *A. ochroleuca*, *Bryocaulon divergens*, *Cladonia amaurocraea*, *Flavocetraria cucullata* and *Thamnolia vermicularis*; ap. *Sphaerophorus fragilis* is a common saxicolous lichen in Greenland; however, the species prefers a soil substrate in the present investigation area (Hansen, 1995).
- S. GLOBOSUS (Huds.) Vain. – 2. On soil in fell-field, together with *Alectoria nigricans*, *Bryocaulon divergens*, *Flavocetraria cucullata* and *F. nivalis*; st. LGE 1116.
- SPORASTATIA TESTUDINEA (Ach.) A. Massal. – 1, 2. On siliceous rocks; ap.
- STEREOCAULON ALPINUM Laurer – 1, 2. On soil in dwarf shrub heaths; st.
- S. ARCTICUM Lynge – 1. On soil; st.
- S. ARENARIUM (L. I. Savicz) I. M. Lamb – 1. On soil; st.
- S. BOTRYOSUM Ach. – 1. On siliceous rock; st.
- S. GLAREOSUM (L. I. Savicz) H. Magn. – 1, 2. On soil; ap.
- THAMNOLIA VERMICULARIS (Sw.) Schaer. var. SUBULIFORMIS (Ehrh.) Schaer. – 1, 2. On soil in dwarf shrub heaths and fell-fields; common. LGE 1118.
- TRAPELIOPSIS GRANULOSA (Hoffm.) Lumbsch – 1. On soil, together with *Cladonia borealis*; st.
- TREMOLECIA ATRATA (Ach.) Hertel – 1. On siliceous rocks with patches of limonite; ap.
- UMBILICARIA ARCTICA (Ach.) Nyl. – 1, 2. On siliceous rocks manured by birds; ap.
- U. DECUSSATA (Vill.) Zahlbr. – 1, 2. On siliceous rocks manured by birds; st.
- U. DEUSTA (L.) Baumg. – 1. On moist siliceous rocks; st.
- U. HIRSUTA (Sw. Ex Westr.) Hoffm. – 2. On siliceous rocks; st.
- U. HYPERBOREA (Ach.) Hoffm. – 1, 2. On siliceous rocks; ap.
- U. LYNGEI Schol. – 1, 2. On siliceous rocks; st.
- U. NYLANDERIANA (Zahlbr.) H. Magn. – 2. On siliceous rocks, together with *Parmelia sulcata*; ap.
- U. PROBOSCIDEA (L.) Schrad. – 1. On siliceous rocks; ap.

- U. TORREFACTA (Lightf.) Schrad. – 1, 2. On siliceous rocks; ap.
- U. VELLEA (L.) Hoffm. – 2. On moist siliceous rocks, st.
- U. VIRGINIS Schaer. – 1, 2. On siliceous rocks; ap.; common. LGE 1119.
- VERRUCARIA CEUTHOCARPA Wahlenb. – 2. On siliceous seashore rocks; pe; common.
- XANTHORIA CANDELARIA (L.) Th. Fr. – 1, 2. On siliceous rocks manured by birds and on old bones; st.
- X. ELEGANS (Link) Th. Fr. – 1, 2. On siliceous rocks manured by birds and on old bones; ap.
- X. SOREDIATA (Vain.) Poelt – 1. On vertical, siliceous rock manured by birds; st.

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